

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

2N5151 2N5153 PNP  
2N5152 2N5154 NPN

COMPLEMENTARY SILICON  
POWER TRANSISTORS

JEDEC TO-39 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5151 series types are complementary silicon transistors manufactured by the epitaxial planar process mounted in a hermetically sealed metal case, designed for high current switching applications.

## MAXIMUM RATINGS (T<sub>C</sub>=25°C unless otherwise noted)

	SYMBOL	2N5151	2N5153	2N5152	2N5154	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	100		100		V
Collector-Emitter Voltage	V <sub>CEO</sub>	80		80		V
Emitter-Base Voltage	V <sub>EB0</sub>	5.5		6.0		V
Collector Current	I <sub>C</sub>	5.0		2.0		A
Collector Current (Peak)	I <sub>CM</sub>	10		10		A
Base Current	I <sub>B</sub>	2.5		1.0		A
Power Dissipation (T <sub>A</sub> =25°C)	P <sub>D</sub>	1.0		1.0		W
Power Dissipation (T <sub>C</sub> =50°C)	P <sub>D</sub>	10		10		W
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>STG</sub>		-65 TO +200			°C
Thermal Resistance	θ <sub>JA</sub>		175			°C/W
Thermal Resistance	θ <sub>JC</sub>		15			°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>C</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N5151		2N5152		2N5153		2N5154		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
I <sub>CES</sub>	V <sub>CE</sub> =60V		1.0		1.0		1.0		1.0	μA
I <sub>CES</sub>	V <sub>CE</sub> =100V		1.0		1.0		1.0		1.0	mA
I <sub>CEV</sub>	V <sub>CE</sub> =60V, V <sub>BE</sub> =2.0V, T <sub>C</sub> =150°C		500		500		500		500	μA
I <sub>CEO</sub>	V <sub>CE</sub> =40V		50		50		50		50	μA
I <sub>EBO</sub>	V <sub>EB</sub> =4.0V (PNP types only)		1.0		-		1.0		-	μA
I <sub>EBO</sub>	V <sub>EB</sub> =5.5V (PNP types only)		1.0		-		1.0		-	mA
I <sub>EBO</sub>	V <sub>EB</sub> =5.0V (NPN types only)		-		1.0		-		1.0	μA
I <sub>EBO</sub>	V <sub>EB</sub> =6.0V (NPN types only)		-		1.0		-		1.0	mA
BV <sub>CEO</sub>	I <sub>C</sub> =100mA	80		80		80		80		V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =2.5A, I <sub>B</sub> =250mA		0.75		0.75		0.75		0.75	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =5.0A, I <sub>B</sub> =500mA		1.5		1.5		1.5		1.5	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =2.5A, I <sub>B</sub> =250mA		1.45		1.45		1.45		1.45	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =5.0A, I <sub>B</sub> =500mA		2.2		2.2		2.2		2.2	V
V <sub>BE(ON)</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =250mA		1.45		1.45		1.45		1.45	V
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =50mA	20		20		50		50		
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.5A	30	90	30	90	70	200	70	200	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.5A, T <sub>C</sub> =-55°C	15		15		35		35		
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =5.0A	20		20		40		40		
h <sub>fe</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =0.1A, f=1.0kHz	20		20		50		50		
f <sub>T</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =0.5A, f=20MHz	60		60		70		70		MHz
C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>B</sub> =0, f=1.0MHz		250		250		250		250	pF
t <sub>ON</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =5.0A, I <sub>B1</sub> =0.5A	0.5	TYP	0.5	TYP	0.5	TYP	0.5	TYP	μs
t <sub>OFF</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =5.0A, I <sub>B1</sub> =I <sub>B2</sub> =0.5A	1.3	TYP	1.3	TYP	1.3	TYP	1.3	TYP	μs